

### **REMARKS**

Reconsideration of this application is respectfully requested in view of the foregoing amendment and the following remarks.

Claims 7, 11, and 13 are currently pending. By the foregoing Amendment, claims 7 and 11 have been amended. Clear support for these amendments can be found at the specification at, for example, page 7, lines 21-23. Therefore, no new matter has been introduced.

In the Office Action mailed March 27, 2008, Claims 7 and 11 were objected to for informalities. In response, Claims 7 and 11 have been amended to correct the informalities. Therefore, withdrawal of the above objection is respectfully submitted.

In the Office Action, Claim 7 was rejected under 35 U.S.C. §102(e) as being allegedly anticipated by U.S. Patent No. 6,531,405 to Wegleiter ("Wegleiter"), and Claims 7, 11, and 13 were rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Wegleiter in view of U.S. Patent No. 5,308,996 to Itabashi ("Itabashi"). It is noted that Claims 7 and 11 have been amended. To the extent that the rejections remain against the claims as pending, Applicants hereby traverse the rejections as follows.

Claim 7, as amended, recites each of the fine projections has a diameter in a range of 0.3  $\mu\text{m}$  to less than 3  $\mu\text{m}$ , and the diameter is a length from a foot of one of the fine projections to a foot of next one of the fine projections. In addition to the above feature, Claim 11, as amended, further recites a fabrication process for a light emitting diode having, comprising forming a pellet on a major front surface of a light emitting diode dice, where an electrode is formed, wherein the major front surface is made of a GaAsP mixed

crystal, wet-etching the pellet with an etching solution of an aqueous solution selected from a groups consisting of Br<sub>2</sub>, nitric acid, hydrofluoric acid and acetic acid and or I<sub>2</sub>, nitric acid, hydrofluoric acid, and acetic acid to form fine projections that are formed densely on the major front surface and all side surfaces of the pellet.

The Office Action alleged that col. 4, lines 2-5 of Wegleiter teaches that the convex surfaces have a diameter of 1  $\mu\text{m}$ , which is within the claimed range of the “diameter” of the fine projections as claimed. Applicants respectfully disagree because col. 4, lines 2-5 of Wegleiter clearly describes that “[t]he resulting surface roughness attained with the two etching steps has the shape of “sawteeth” which are arranged next to one another and have a height of approximately 1  $\mu\text{m}$ . The height of a projection has nothing to do necessarily with the width of a projection, especially for “sawteeth”. Claim 1 clearly claims the diameter is a length from a foot of one of the fine projections to a foot of next one of the fine projections, i.e., width of the fine projection is in a range of 0.3  $\mu\text{m}$  to less than 3  $\mu\text{m}$ . Wegleiter fails to teach or suggest such feature. Furthermore, there is no disclosure in Wegleiter that the convex surfaces of the rough surfaces are configured to allow a light getting to an interface between a light emitting surface and the air at an angle larger than a critical angle of total reflection  $\theta$  to be transited into the air through the convex surfaces, as recited in amended Claim 7. Accordingly, Applicants respectfully submit that amended Claim 1 is not anticipated by Wegleiter.

In supporting the obviousness rejection of Claims 7 and 11, the Office Action relied on Itabashi by stating that Itabashi teaches an aqueous solution containing I<sub>2</sub>, nitric acid, hydrofluoric acid and acetic acid for reducing the time of making the device, as shown in

col. 9, lines 36-41 and col. 3, lines 25-26. Applicants respectfully submit that the solution used in Itabashi is to etch a n type a-Si:H layer, which is not a GaAsP mixed crystal, as recited in amended Claims 7 and 11. As a-Si:H layer and GaAsP mixed crystal layer have different characteristics, there would have different etching result. Furthermore, in Itabashi, the etching step is to remove non-masked layers 103-107, not to form fine projections on the a-Si:H layer 106. There is no teaching of using such an etching solution as taught in Itabashi to roughen any surface. There is no expectation of success to use the same on the surface of Wegleiter; that is, it would not achieve a roughen surface having fine projections, each of which has a diameter in a range of 0.3  $\mu\text{m}$  to less than 3  $\mu\text{m}$ , and the diameter is a length from a foot of one of the fine projections to a foot of next one of the fine projections, as recited in amended Claims 7 and 11. Accordingly, Applicants respectfully submit that it would not have been obvious for one skilled in the art to combine Wegleiter and Itabashi to achieve the light emitting diode of amended Claim 7, and the method of amended 11.

Amended Claims 7 and 11 are, therefore, allowable over Wegleiter in view of Itabashi.

Claim 13, which depends from allowable Claim 11, is also allowable at least due to their dependency from allowable independent claim.

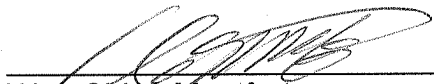
### **Conclusion**

Applicants respectfully submit that this application is in condition for allowance and such action is earnestly solicited. If the Examiner believes that anything further is desirable in order to place this application in even better condition for allowance, the

Examiner is invited to contact Applicants' undersigned representative at the telephone number listed below to schedule a personal or telephone interview to discuss any remaining issues.

In the event that this paper is not considered to be timely filed, an appropriate extension of time is requested. Any fees for such an extension, together with any additional fees that may be due with respect to this paper, may be charged to counsel's Deposit Account Number 01-2300, referencing **Docket Number 107242-00005**.

Respectfully submitted,  
Arent Fox PLLC

  
\_\_\_\_\_  
Wan-Ching Montfort  
Registration Number 56,127

Customer Number 004372  
ARENT FOX PLLC  
1050 Connecticut Avenue, NW  
Suite 400  
Washington, DC 20036-5339  
Telephone: 202-857-6000  
Fax: 202-638-4810

GEO/CYM